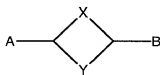


## CLAIMS

1. An organic molecule according to one of the following formulae:

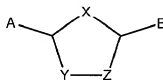


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wherein, X is CO and Y is selected from the group consisting of O, S, Se, Te, CS, CR1R2, NR1, SiR1R2, GeR1R2, PR1, R'; or wherein X and Y are independently selected from the group consisting of O, S, Se, CS, Te, CR1R2, NR1, SiR1R2, GeR1R2, PR1, R'; and wherein R1 and R2, which may be the same or different, are selected from

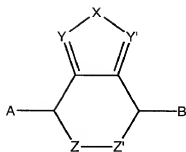
- 10 the group R;



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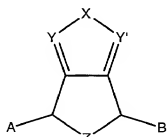
wherein X is CO and Y and Z are independently selected from the group consisting of O, S, Se, Te, CS, CR1R2, NR1, SiR1R2, GeR1R2, PR1, R'; or wherein Y and Z are each CO and X is selected from the group O, S, Se, Te, CS, CR1R2, NR1,

- 15 SiR1R2, GeR1R2, PR1, R'; or wherein X and Z are each CO and Y is selected from the group O, S, Se, Te, CS, CR1R2, NR1, SiR1R2, GeR1R2, PR1, R'; or wherein X and Y are each CO and Z is selected from the group O, S, Se, Te, CS, CR1R2, NR1, SiR1R2, GeR1R2, PR1, R'; or wherein X, Y and Z are independently selected from the group consisting of O, S, Se, Te, CS, CR1R2, NR1, SiR1R2, GeR1R2, PR1, R'; and wherein
- 20 R1 and R2, which may be the same or different, are selected from the group R;

**3**

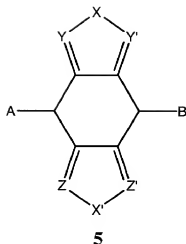
wherein X and Z and Z' are independently selected from the group consisting of O, S, Se, Te, CS, CR<sub>1</sub>R<sub>2</sub>, NR<sub>1</sub>, SiR<sub>1</sub>R<sub>2</sub>, GeR<sub>1</sub>R<sub>2</sub>, PR<sub>1</sub>, R'; Y and Y' are independently selected from the group CR<sub>1</sub>, N; and wherein R<sub>1</sub> and R<sub>2</sub>, which may be the same or

5 different, are selected from the group R;

**4**

wherein X and Z are independently selected from the group consisting of O, S, Se, Te, CS, CR<sub>1</sub>R<sub>2</sub>, NR<sub>1</sub>, SiR<sub>1</sub>R<sub>2</sub>, GeR<sub>1</sub>R<sub>2</sub>, PR<sub>1</sub>, R'; Y and Y' are independently selected from the group CR<sub>1</sub>, N; and wherein R<sub>1</sub> and R<sub>2</sub>, which may be the same or

10 different, are selected from the group R;



wherein X and X' are independently selected from the group consisting of O, S, Se, Te, CS, CR<sub>1</sub>R<sub>2</sub>, NR<sub>1</sub>, SiR<sub>1</sub>R<sub>2</sub>, GeR<sub>1</sub>R<sub>2</sub>, PR<sub>1</sub>, R'; Y, Y', Z and Z' are independently selected from the group CR<sub>1</sub>, N; and wherein R<sub>1</sub> and R<sub>2</sub>, which may be the same or different, are selected from the group R;

and wherein R is the group consisting of hydrogen atom, a substituted or unsubstituted alkyl group, a substituted or unsubstituted aryl group, a substituted or unsubstituted aralkyl group, a halide atom, a hydroxy group, a substituted or unsubstituted amine group, a substituted or unsubstituted alkoxy group, a substituted or unsubstituted thioalkyl group

and wherein -A and -B in Formulae 1 to 5 given above are independently selected from moieties containing 2n carbon atoms each of which are connected to three (3) atoms at least one (1) of which is one (1) of the 2n carbon atoms other than a carbon atom that is double bonded to a heteroatom, wherein n is an integer equal to or greater than 1;

wherein the infrared dye absorbs strongly in the near infrared region of the spectrum but poorly in the visible region of the spectrum

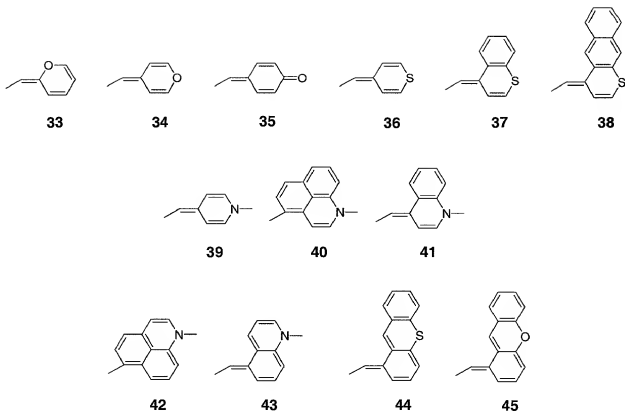
2. An infrared dye according to claim 1 wherein the dye is of Formula 1 to 5.

3. An infrared compound according to claim 2 having the formula selected from the group consisting of:

**6****7****8****9****10****11****12****13**

3.

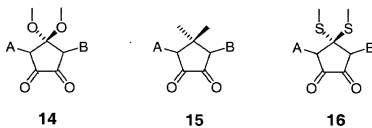
An infrared dye according to claim 1 or claim 2 wherein -A and -B are each independently selected from the group consisting of:



4.5 A compound according to claim 2 wherein -A and -B are the same.

5 ~~4.6~~ A compound according to claim 1 of Formula 2.

5 ~~4.7~~ A compound of claim 5 having a formula selected from the group consisting of:






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7.  A compound according to claim 5 or claim 6 wherein -A and -B are each independently selected from the group consisting of:



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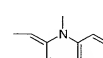
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



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8.  A compound of claim 1 of Formula 3.

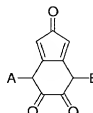
9.  A compound of claim 8 having a formula selected from the group consisting of:



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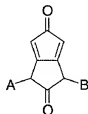
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10. A compound of claim 1 of Formula 4.

11. A compound of claim 10 having a formula selected from the group consisting of:



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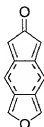
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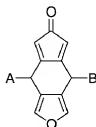
12. A composition of claim 1 of Formula 5.

13. A compound of claim 12 having a formula selected from the group consisting of:

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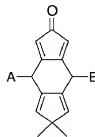
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14. An infrared dye composition comprising a compound according to claim 1.

15. An infrared absorbing compound according to claim 1 wherein one or more polar group substituents such as  $-\text{SO}_3\text{H}$ ,  $-\text{NH}_2$  and  $-\text{CN}$  are utilized.

16. A solvent-based ink composition comprising a compound according to claim 1.

17. A solvent-based ink according to claim 15 which is ink jet printer ink.

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